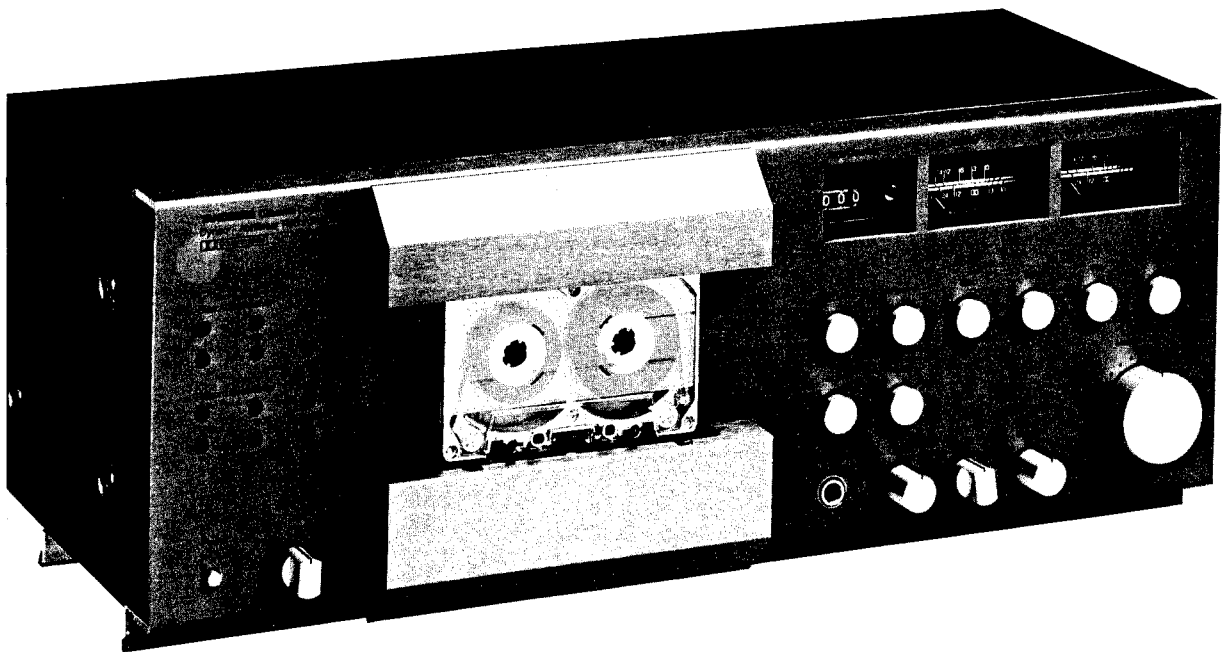


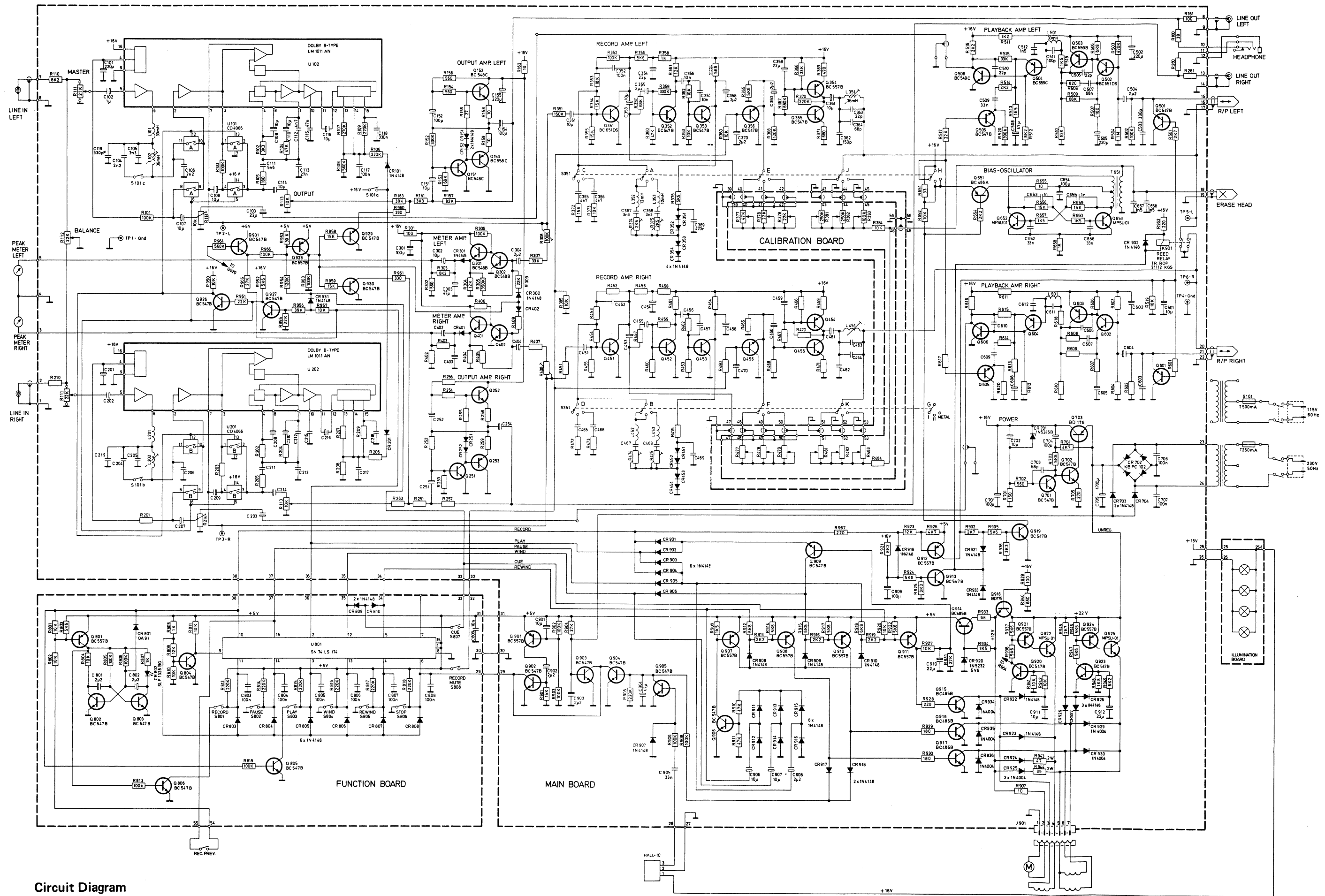
TANDBERG® TCD 3034



Circuit Diagram with Alignment Instructions



Preliminary



Circuit Diagram

Electrical cheks and adjustments

General

- Before adjusting, the tape path must be cleaned and demagnetized. It is necessary that the tape path is correctly adjusted.
- Carry out the electrical adjustments in the order described because the adjustments affect each other.
- Remove the top/side cover.

Equipment required

- 2 millivoltmeters.
- Audio signal generator.
- Frequency counter.
- Distortion meter.
- Tandberg test cassettes:
 - No. 23 (Azimuth adj. playb. head, 10000 Hz)
 - No. 24 (Playback level adj., 1000 Hz)
 - No. 21 (Speed check, 1000 Hz)
- Measuring cassettes:
 - Maxell UD XL I (Type I),
 - Maxell UD XL II (Type II),
 - Maxell MX Metaxial (Metal).

Oscillator

- The bias oscillator frequency is between 78 kHz and 90 kHz.

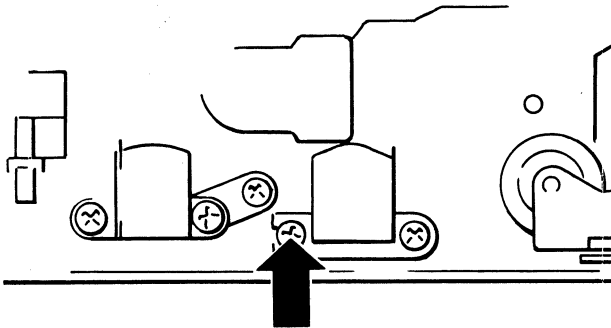
Bias traps

Set the deck to record mode. Press the Rec. Mute button in and keep it depressed. Then measure with a millivoltmeter on the top of R370/470 and adjust L351/451 to minimum reading.

** Dolby and the double D-symbol are trademarks of Dolby Laboratories Licensing Corporation. Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.*

Record/Playback head — azimuth

- Insert a Tandberg test cassette No. 23 or a standard azimuth cassette.
- Connect a millivoltmeter to each channel of the Play sockets.
- Set the deck to Play position.



Playback azimuth screw

- Adjust the playback azimuth screw to maximum output on both channels or best compromise on the Play sockets.

Playback level

Numbers in brackets refers to level on Play sockets with output volume to maximum.

- Insert Tandberg test tape No. 24, 1000 Hz Playback level.
- Assure that the tape selector is in Type I position.
- Play back and adjust to 760 mV [1170 mV] in TP2-L and TP3-R.

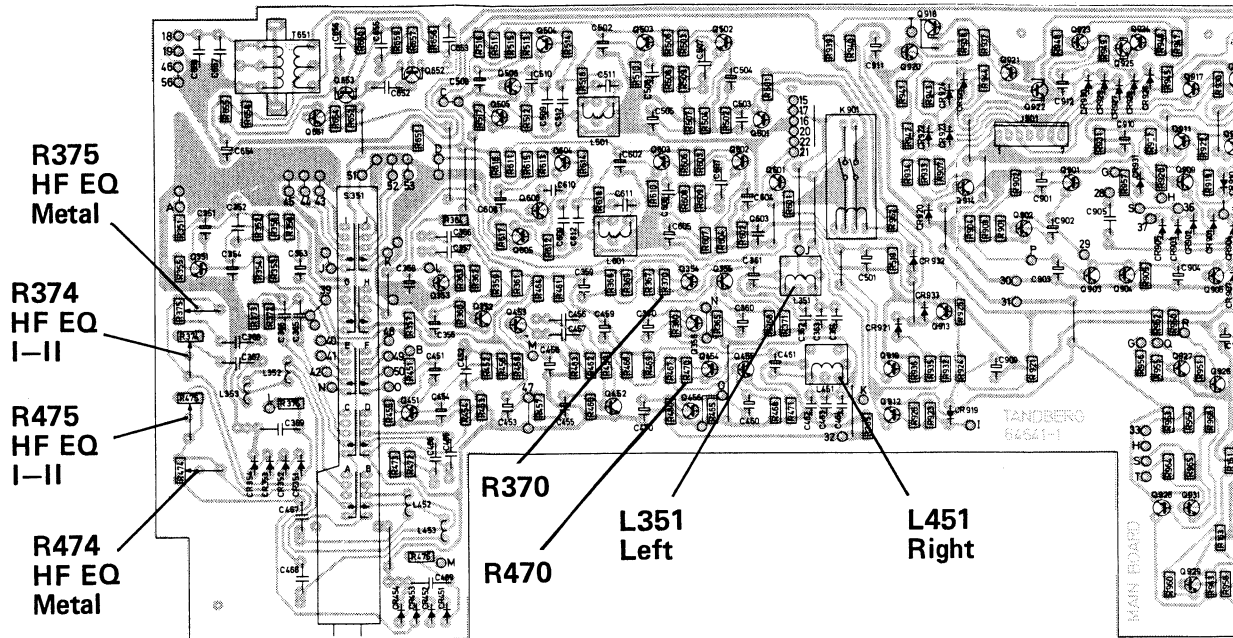
DIN level tape gives 650 mV [1000 mV] and Dolby* level tape gives 580 mV [900 mV].

Record adjustments

Metal tape

- Set the Dolby NR-switch to Off and the Tape switch to Metal.
- Apply 1 V, 315 Hz to the Record sockets.
- Preset HF EQ R375/475 on the Main board to slightly clockwise off-centre, seen from the solder side. Then preset the Bias Adjustment, Metal tape on the front slightly clockwise off-centre.
- Measure on TP2/TP3 and adjust with the Master Control to 65 mV [100 mV]. If necessary, adjust the Balance control to obtain 65 mV [100 mV] on TP2/TP3.

- Set the deck to Record. Record 315 Hz and 15 kHz.
- Rewind and play back. Use the 315 Hz as reference. If the 15 kHz is too high, increase the bias (clockwise) and if the 15 kHz is too low, decrease the bias (counter-clockwise).
- Make a new recording and check once more.
- Record 315 Hz, rewind and play back.
- Adjust Record Sensitivity, Metal tape on the front to obtain the same level on the signal recorded and the signal played back.
- Make a new recording, play back and check once more.
- Record 315 Hz, 15 kHz, and 20 kHz. Rewind and play back and check the levels. If outside the tolerance ± 1 dB, adjust HF EQ METAL R375/475 to get the correct level at 20 kHz.
- Make a new recording, play back and check once more.
- Then check the frequency response from 20 Hz to 20 kHz both channels.
- Set the Dolby NR switch to On and check that the frequency response is within ± 3 dB from 20 Hz to 20 kHz.



Main Board, seen from solder side

Type II tape

- Set the Dolby NR switch to Off and the Tape switch to II.
- Apply 1 V, 315 Hz to the Record sockets.
- Preset HF EQ R374/474 on the Main board to slightly clockwise off-centre, seen from the solder side. Then preset the Bias Adjustment II on the front slightly clockwise off-centre.
- Measure on TP2/TP3 and adjust with the Master Control to 20 mV [32 mV]. If necessary, adjust the Balance control to obtain 20 mV [32 mV] on TP2/TP3.
- Set the deck to Record. Record 315 Hz and 15 kHz.
- Rewind and play back. Use the 315 Hz as referense. If the 15 kHz is too high, increase the bias (clockwise) and if the 15 kHz is too low, decrease the bias (counter-clockwise).
- Make a new recording and check once more.
- Record 315 Hz, rewind and play back.
- Adjust Record Sensitivity, type II tape on the front to obtain the same level on the signal recorded and the signal played back.
- Make a new recording, play back and check once more.

Type I tape

- Record 315 Hz and 15 kHz. Rewind and play back and check the levels. If outside the tolerance ± 1 dB, adjust HF EQ METAL R375/475 to get the correct level at 20 kHz.
- Make a new recording, play back and check once more.
- Then check the frequency response from 20 Hz to 20 kHz both channels.
- Set the Dolby NR switch to On and check that the frequency response is within ± 3 dB from 20 Hz to 20 kHz.
- The HF EQ METAL is altered.
- Use the same procedure as for Type II tape.

Distortion

- Record 315 Hz, 15 kHz, and 20 kHz. Rewind and play back and check the levels. If outside the tolerance ± 1 dB, adjust HF EQ METAL R375/475 to get the correct level at 20 kHz.
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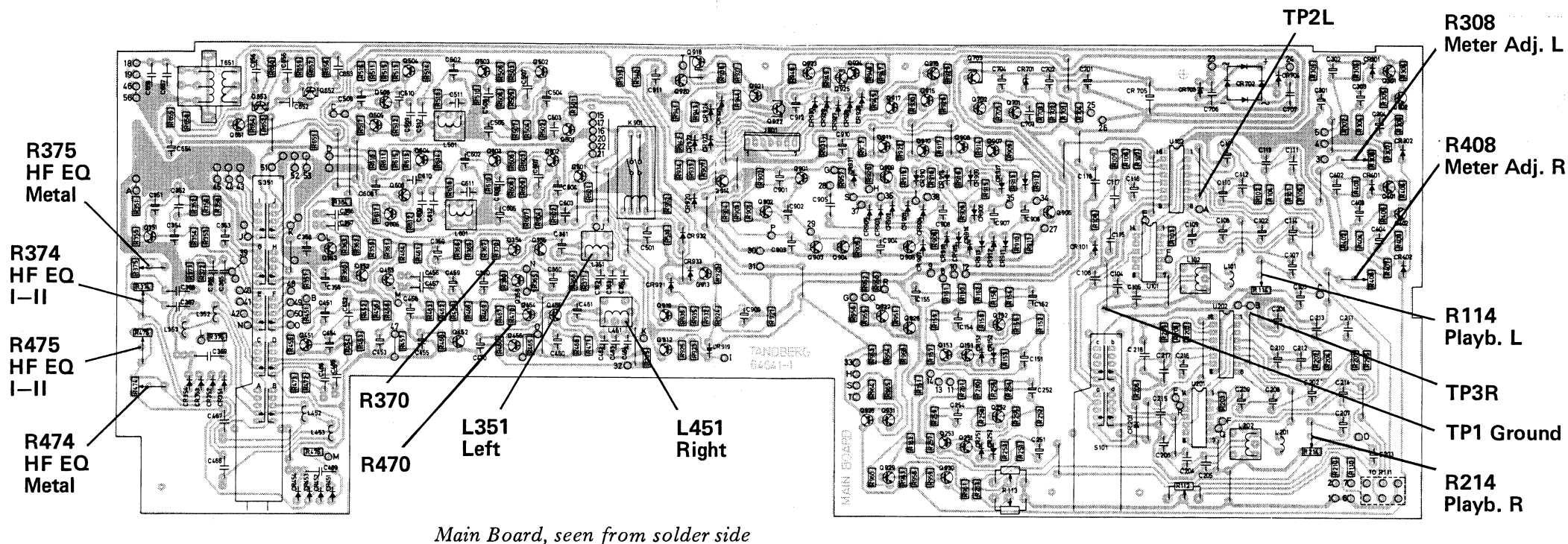
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Main Board, seen from solder side

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- Make a new recording and check once more.
- Record 315 Hz, rewind and play back.
- Adjust Record Sensitivity, Metal tape on the front to obtain the same level on the signal recorded and the signal played back.
- Make a new recording, play back and check once more.
- Record 315 Hz, 15 kHz, and 20 kHz. Rewind and play back and check the levels. If outside the tolerance ± 1 dB, adjust HF EQ METAL R375/475 to get the correct level at 20 kHz.
- Make a new recording, play back and check once more.
- Then check the frequency response from 20 Hz to 20 kHz both channels.
- Set the Dolby NR switch to On and check that the frequency response is within ± 3 dB from 20 Hz to 20 kHz.

Type II tape

- Set the Dolby NR switch to Off and the Tape switch to II.
- Apply 1 V, 315 Hz to the Record sockets.
- Preset HF EQ R374/474 on the Main board to slightly clockwise off-centre, seen from the solder side. Then preset the Bias Adjustment II on the front slightly clockwise off-centre.
- Measure on TP2/TP3 and adjust with the Master Control to 20 mV [32 mV]. If necessary, adjust the Balance control to obtain 20 mV [32 mV] on TP2/TP3.
- Set the deck to Record. Record 315 Hz and 15 kHz.
- Rewind and play back. Use the 315 Hz as reference. If the 15 kHz is too high, increase the bias (clockwise) and if the 15 kHz is too low, decrease the bias (counter-clockwise).
- Make a new recording and check once more.
- Record 315 Hz, rewind and play back.
- Adjust Record Sensitivity, type II tape on the front to obtain the same level on the signal recorded and the signal played back.
- Make a new recording, play back and check once more.

- Record 315 Hz, 15 Hz, and 20 kHz, rewind and play back and check the levels. If outside the tolerance ± 1 dB, adjust HF EQ I-II, R374/474 to get the correct level at 20 kHz.
- Make a new recording, play back and check once more.
- Then check the frequency response from 20 Hz to 20 kHz both channels.
- Set the Dolby NR switch to On and check that the frequency response is within ± 3 dB from 20 Hz to 20 kHz.

Type I tape

- The HF EQ I-II R374/474 should not be altered.
- Use the same procedure as for Type II tape.

Distortion

- Record 315 Hz so that the signal played back gives 650 mV on TP2/TP3, or 1 V on the Play sockets.
- Distortion should be less than 3% on all tape types.

Program meters

- Use 315 Hz and adjust with the Master Control/Balance to 760 mV [1170 mV] on TP2/TP3.
- Adjust with R308/408 to 0 dB deflection on the I-II scale.

Speed check

- Play back Tandberg test cassette No. 21 (speed check, 1000 Hz) and measure with a frequency counter on the Play sockets $\pm 1.5\%$ (885 to 1015 Hz).
- If necessary, adjust SPEED ADJ. (on the motor) to correct speed.

Wow and flutter check

Use a Maxell UD C-60 cassette. Connect the wow and flutter meter to the TCD 3034.

Set the deck to record mode and record for about half a minute. Rewind the cassette and set the TCD 3034 to Play.

Measure on the Play sockets:
Weighted RMS $< 0.12\%$.